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7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

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13. ABSTRACT (Maximum 200 words)

The main goal of the research discussed in this conference is a mathematical understanding of nonlinear dynamics appropriate for models of continua which admit phase transitions. The mathematical problems that were discussed addressed the general questions. How do nonlinear systems relax to equilibrium? How do interfaces and transition zones propagate? The speakers represented different aspects of the subject. The group included theoreticians as well as numerical analysts. The conference was very well attended and quite successful.

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## Final Report on AFOSR-91-0232

The main goal of the research discussed in this conference is a mathematical understanding of nonlinear dynamics appropriate for models of continua which admit phase transitions. The mathematical problems that were discussed addressed the general questions. How do nonlinear systems relax to equilibrium? How do interfaces and transition zones propagate?

The speakers represented different aspects of the subject. The group included theoreticians as well as numerical analysts.

The conference was very well attended and apparently quite successful. On behalf of the Mathematics Department here at UT I want to express our thanks to the Air Force that made this possible.

Please find enclosed:

1. Program of talks and lecturers
2. List of supported participants
3. Bills from hotels.



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# BARRETT MEMORIAL LECTURES

## TENTATIVE PROGRAM

UNIVERSITY CENTER - SHILOH ROOM

### THURSDAY, APRIL 4

9:15                      Introductory Remarks

9:30 - 10:30            J. Ball, Heriot-Watt University

Title:                      Nonattainment of the minimum in the Calculus of Variations

12:00 - 2:00            Lunch Break

2:00 - 3:00            L.C. Evans, Berkeley

Title:                      Phase Transitions and Wave front Propagation I

3:00 - 3:15            Break

3:15 - 4:15            J. Sethian, Berkeley

Title:                      Fronts and Interfaces: Computing Snowflakes, Flames, and Fluids

**92-13273**  


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# BARRETT MEMORIAL LECTURES

## TENTATIVE PROGRAM

UNIVERSITY CENTER - SHILOH ROOM

### FRIDAY, APRIL 5

9:30 - 10:30 J. Ball, Heriot-Watt University

Title: Crystal microstructure via elasticity theory

10:30 - 11:00 Break

11:00 - 12:00 P. Fife

Title: Dynamical Aspects of the Cahn - Hilliard Equation:  
Stationary states and their instabilities

12:00 - 2:00 Lunch Break

2:00 - 3:00 L.C. Evans, Berkeley

Title: Phase Transitions and Wave front propagation II

3:00 - 3:15 Break

3:15 - 4:15 G. Fusco, Rome

Title: Slow Dynamics for the Cahn - Hilliard Equation in higher  
space dimensions

# **BARRETT MEMORIAL LECTURES**

## **TENTATIVE PROGRAM**

**UNIVERSITY CENTER - SHILOH ROOM**

### **SATURDAY, APRIL 6**

**9:30 - 10:30          J. Ball, Heriot-Watt University**

**Title:                  Dynamics and Minimizing Sequences**

**10:30 - 11:00          Break**

**11:00 - 12:00          P. Fife**

**Title:                  Dynamical Aspects of the Cahn - Hilliard Equation:  
Layered Solutions**

**12:00 - 2:00          Lunch Break**

**2:00 - 3:00              L.C. Evans, Berkeley**

**Title:                  Phase Transitions and Wave front propagation III**

**3:00 - 3:15              Break**

**3:15 - 4:15              S.B. Angenent, University of Wisconsin, Madison**

**Title:                  Anisotropic Motion of a phase interface**

Barrett Lectures, 4/91

<u>Participants</u>	<u>University</u>	<u>Hotel Accommodations</u>
W. McKinney	NC State	\$140.00
Dan and Pat Phillips	Purdue	175.00
R. Gardner	U. of Massachusetts	140.00
W. Heinz	Georgia Tech	105.00
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J. Ward	U. of Alabama, Birmingham	35.00
G. Fusco	Rome	350.00
J. Ball	Heriot-Watt	140.00
L.C. Evans	Berkeley	140.00
P. Fife	University of Utah	125.00
S. Angenent	U. of Wisconsin, Madison	105.00
J. Sethian	Berkeley	175.00
K. Lu and G. Xun	Brigham Young	152.00
Tataru	Georgia Tech	152.00
C. Li	University of Pennsylvania	152.00
S. Koike	Berkeley	190.00
K. Michaikov	Georgia Tech	38.00
Tetseu		
S. Sritharan	U. of California, Riverside	38.00
P. Sternberg	University of Indiana	76.00

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<b><u>Participants</u></b>	<b><u>University</u></b>	<b><u>Hotel Accommodations</u></b>
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L. Li	University of Kansas	114.00
M. James	University of Minnesota	114.00
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E. Van Vleck	Georgia Tech	114.00
Smith	Arizona State University	152.00
J. Hale	Georgia Tech	228.00
B. Vernescu	Courant	152.00
S. Alama	Georgia Tech	152.00

**Barrett Lectures, 4/91**

<b><u>Participants</u></b>	<b><u>University</u></b>	<b><u>Hotel Accommodations</u></b>
R. Peszek	U. of Maryland	152.00
C. Cosner and S. Cantrell	University of Miami	152.00
M. Katsoulakis	Brown University	152.00
C. Calderer	Carnegie Mellon	152.00